

QUÉRY CONTROL FORM

RTIS USE ONLY

Application No. 10/057,134
Examiner-GAU Robert-2829

Prepared by NPB
Date 3/9/04
No. of queries 2

Tracking Number	05904176
Week Date	2/16/04
1FW	

JACKET

a. Serial No.	f. Foreign Priority	k. Print Claim(s)	p. PTO-1449
b. Applicant(s)	g. Disclaimer	l. Print Fig.	q. PTOL-85b
c. Continuing Data	h. Microfiche Appendix	m. Searched Column	r. Abstract
d. PCT	i. Title	n. PTO-270/328	s. Sheets/Figs
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SPECIFICATION

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CLAIMS

- a. Claim(s) Missing
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- c. Duplicate Numbers
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MESSAGE

① The following forms are missing from file (not found in PFW system):

Field of Search
Index of claims
Issuing Classification.

Please supply.

(2) Please verify page 2 of claim pages dated 01/24/02. Where should the first 3 lines of this page belong? Please advise that claim 3 on the previous page already ends with a period. (See attached).
Please advise.

Thankyou initials *AM*

RESPONSE

initials

CLAIMS

What is claimed is:

1. An apparatus comprising:

at least one stage having a first input terminal that receives a first test
voltage, a second input terminal that receives a first reference voltage, a third
input terminal that receives a second test voltage, and a fourth input terminal that
receives a second reference voltage, said at least one stage having a first output
terminal upon which is produced a first test signal that is proportional to said first
test voltage, a second output terminal upon which is produced a first reference
signal that is proportional to said first reference voltage, a third output terminal
upon which is produced a second test signal that is proportional to said second test
voltage, and a fourth output terminal upon which is produced a second reference
signal that is proportional to said second reference voltage;

a switching circuit coupled to said at least one stage, said switching circuit
having a first output terminal that is switchably coupled to said first output
terminal and one of said third output terminal and said fourth output terminal of
said at least one stage, said switching circuit having a second output terminal that
is switchably coupled to said first output terminal and one of said third output
terminal and said fourth output terminal of said at least one stage; and

a comparator circuit having a first input terminal coupled to said first
output terminal of said switching circuit and a second input terminal coupled to
said second output terminal of said switching circuit.

2. The apparatus of Claim 1, wherein said at least one stage is at least one
transconductance stage, and wherein said first test signal is a first test current and said
second test signal is a second test current, and wherein said first reference signal is a first
reference current and said second reference signal is a second reference current.

3. The apparatus of Claim 1, wherein said at least one stage is a differential amplifier
and wherein said first test signal, said second test signal, said first reference signal, and
said second reference signal are voltage signals.

and wherein said first test signal, and said second test signal are a first test voltage and a second test voltage, and wherein said first reference signal and said second reference signal are a first reference voltage and a second reference voltage.

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4. The apparatus of Claim 2, wherein said at least one transconductance stage comprises:

a first transconductance stage having said first input terminal, said second input terminal, said first output terminal and said second output terminal; and
a second transconductance stage having said third input terminal, said fourth input terminal, said third output terminal and said fourth output terminal.

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5. The apparatus of Claim 2, wherein said switching circuit comprises:

a first transistor coupled between said third output terminal of said at least one transconductance circuit and said first output terminal of said switching circuit;

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a second transistor coupled between said third output terminal of said at least one transconductance circuit and said second output terminal of said switching circuit;

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a third transistor coupled between said fourth output terminal of said at least one transconductance circuit and said first output terminal of said switching circuit; and

a fourth transistor coupled between said third output terminal of said at least one transconductance circuit and said second output terminal of said switching circuit;

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wherein the bases of said first transistor and said fourth transistor are coupled together and the bases of said second transistor and said third transistor are coupled together.

30 6. The apparatus of Claim 5, wherein said switching circuit further comprises: